C. F. VOLK, dec'd.

LOUISA VOLK, Admr'x.

Feathering Paddle-Wheels.

No. 154,571. Patented Sept. 1, 1874.

Fig: 1.

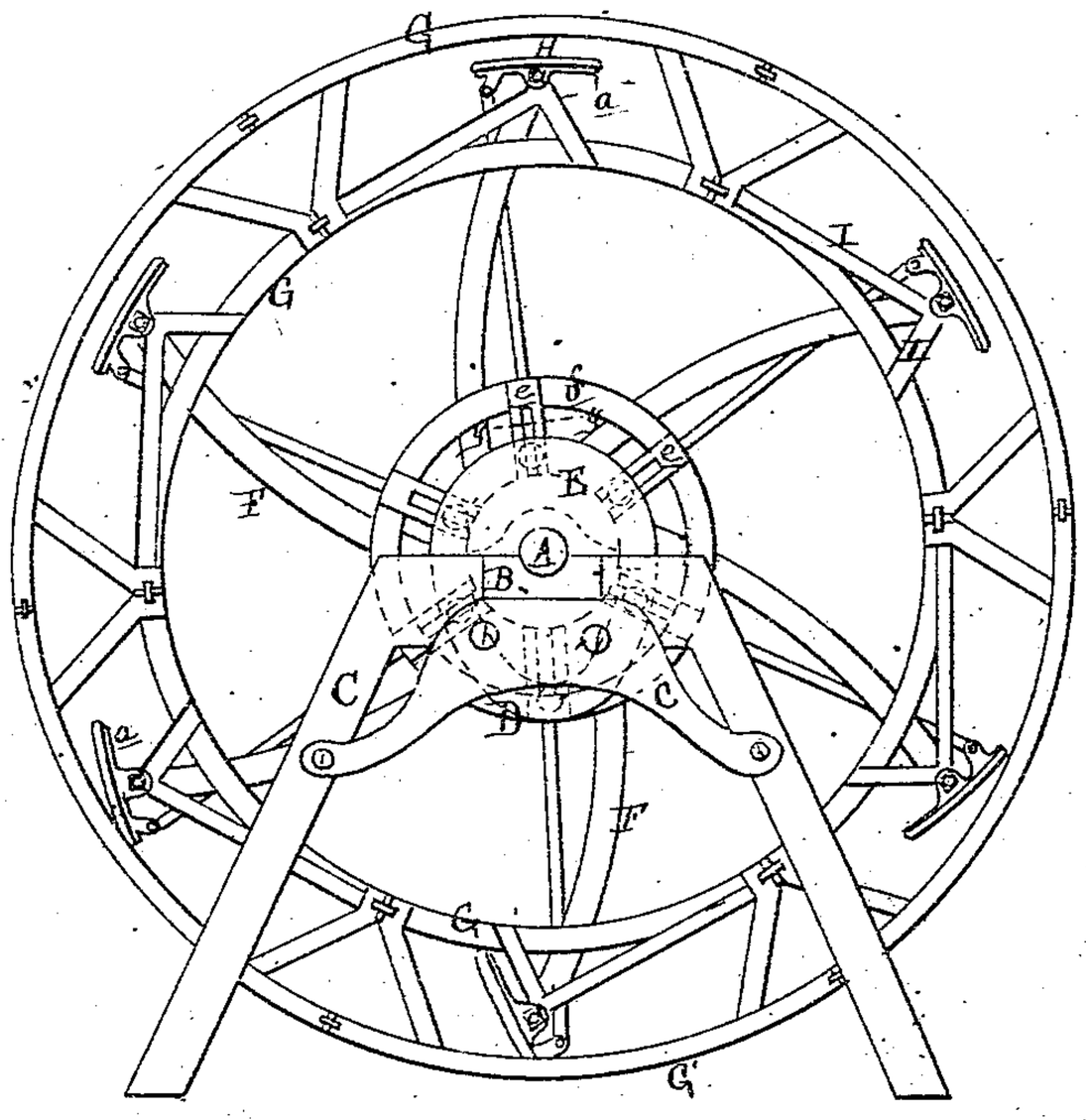


Fig: 2.

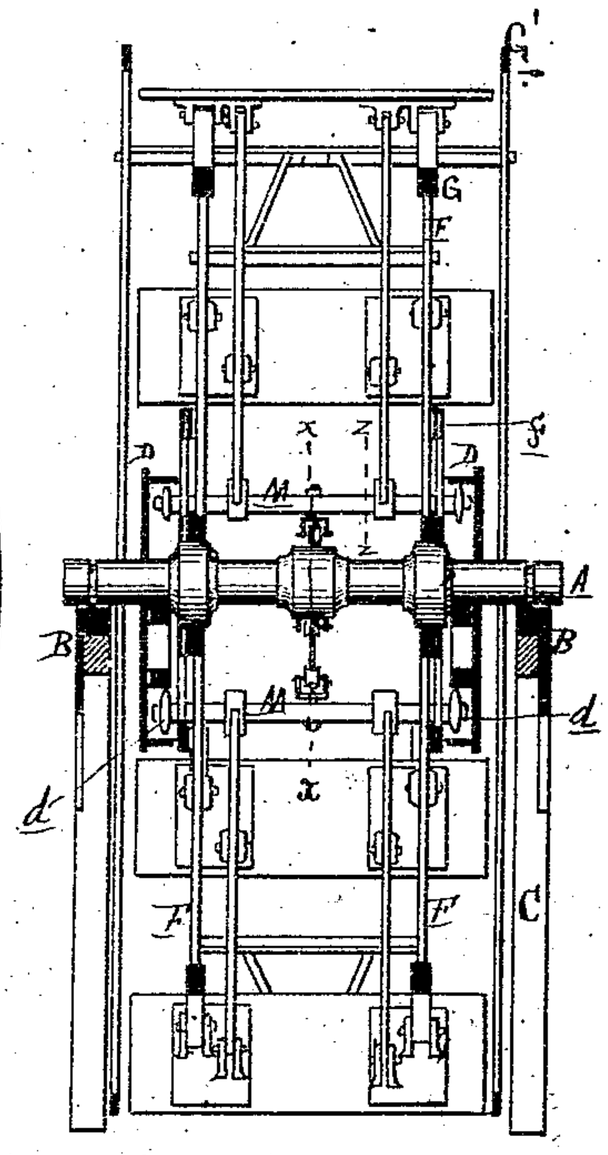


Fig: 3.

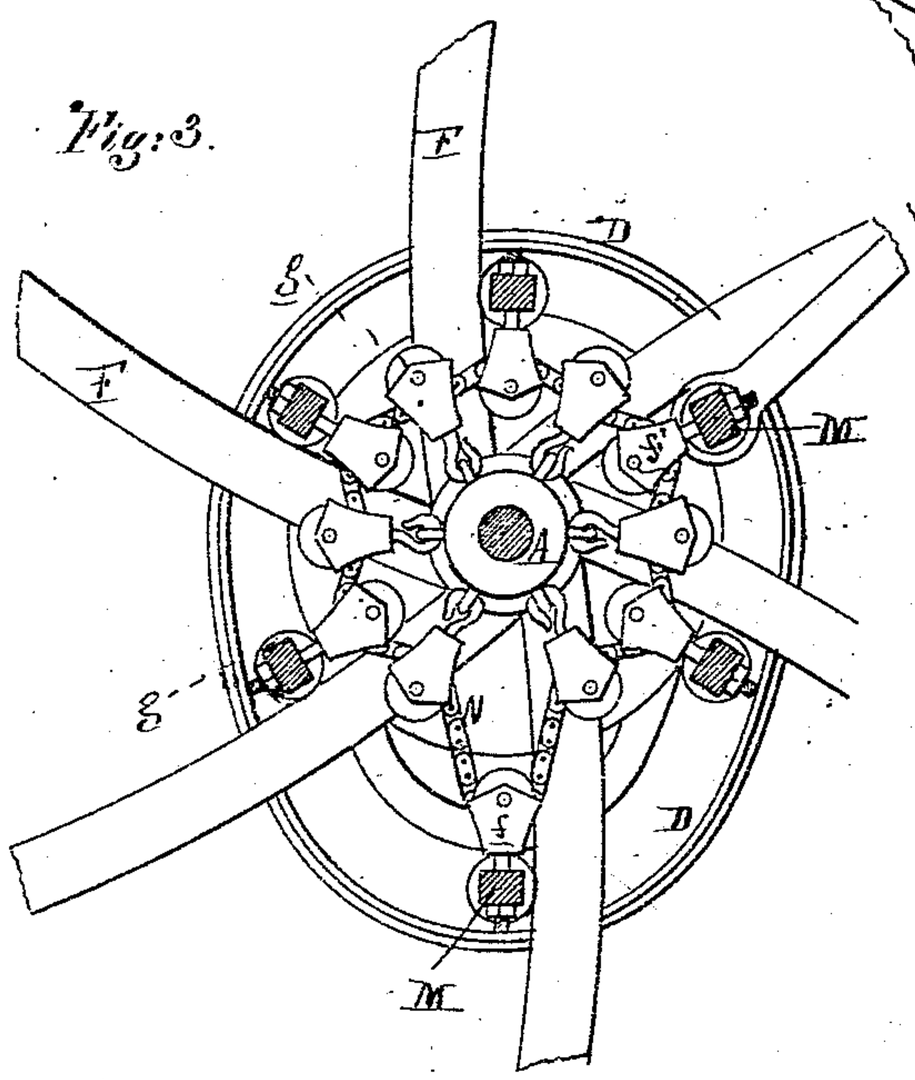


Fig: 4.

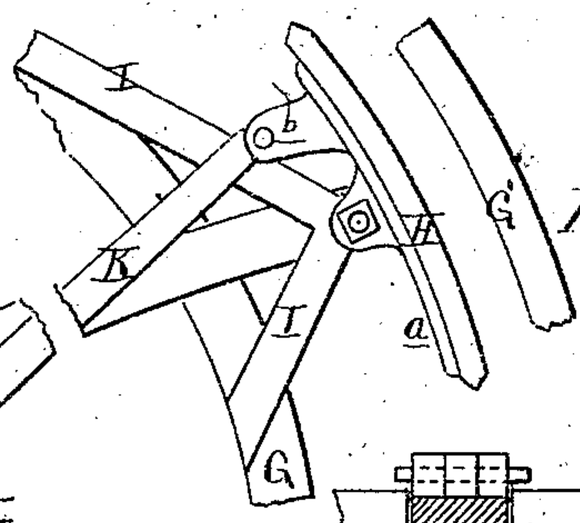


Fig: 5

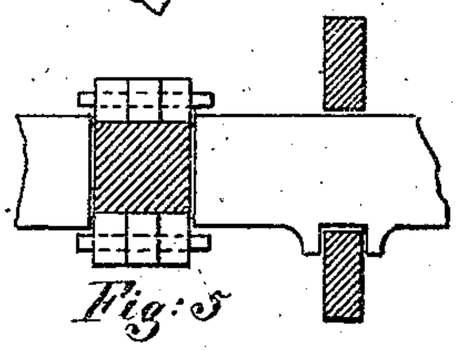


Fig: 6.

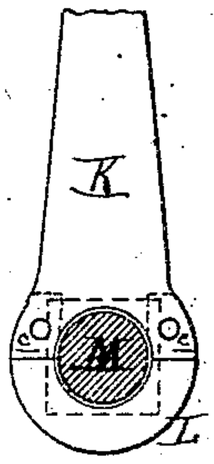
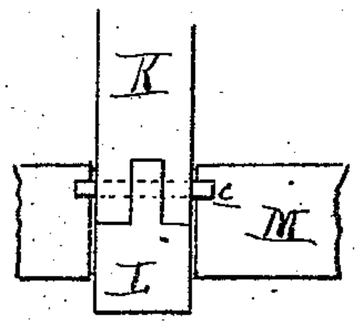


Fig: 7.



Attest.
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by Thos. Sprague
Atty.

UNITED STATES PATENT OFFICE.

LOUISA VOLK, OF BLUE ISLAND, ILLINOIS, ADMINISTRATRIX OF CHARLES F. VOLK, DECEASED.

IMPROVEMENT IN FEATHERING PADDLE-WHEELS.

Specification forming part of Letters Patent No. **154,571**, dated September 1, 1874; application filed May 18, 1874.

To all whom it may concern:

Be it known that CHARLES F. VOLK, late of Blue Island, in the county of Cook and State of Illinois, deceased, did invent an Improved Feathering Paddle-Wheel, of which the following is a specification:

The nature of this invention relates to an improvement in that class of paddle-wheels wherein the floats are pivoted to the extremities of the radial arms, and, by means of levers eccentrically pivoted thereto, and actuated by fixed cams at the other, caused to enter and leave the water in vertical planes.

Figure 1 is a side elevation. Fig. 2 is a vertical cross-section through the center of the wheel. Fig. 3 is a transverse vertical section of the central part of the wheel, at *x x* in Fig. 2. Fig. 4 is an enlarged side elevation of part of the wheel-rim. Fig. 5 is a cross-section of a float-lever, showing in plan a portion of the cross-head, and in section the guide thereof, the section being taken at *y y* in Fig. 1. Fig. 6 is a cross-section of cross-head, at *z z*, Fig. 2, showing the manner of connecting the float-lever thereto. Fig. 7 is a side elevation of the same.

In the drawing, A represents the paddle-shaft, journaled in the pillar-blocks B, which are secured to the wheel-framing C of the ship. To the inner face of each wheel-frame C is secured a double-flanged egg-shaped cam, D. Two flanges, E E, are keyed on the shaft, and to them are bolted the arms F, which do not radiate from the shaft, but are tangent thereto. To their sides and near their outer ends are bolted the circle-irons G, which are the wheel-rims proper, although a pair of larger circles, G', of greater diameter, are jacked thereon, and trussed to withstand the shock resulting from striking ice or drift-wood, for the protection of the floats H, which are bolted on straps *a*, which are pivoted to the ends of the arms, the pivot-bolts also passing through the apexes of angular truss-frames I, whose ends are bolted to the rim proper. The straps at the back of each float have each a lug, *b*, about midway between the float-pivot and the edge of the float, to which lug is pivoted one end of a lever or rod, K, whose other end is secured by a strap, L, to a cross head or bar, M. The strap and stub end of the lever include a pair of brasses for the journal of the cross-head, and the strap is secured to the stub end by a pair of transverse pins, *c*, as shown in Figs. 6 and 7. This allows the levers to vibrate on the cross-head, whose ends project into the flanges of the cams D, where they are provided with friction rollers or collars *d*, Fig. 2.

The projection of the cams D is downward, and the levers are of such length that they turn the floats, so as to form segments of a circle, having the shaft for an axis, until the cross-head enters the projection of the cam-groove, when the levers are projected to turn the float as it enters the water, causing it to assume a new position in a vertical plane, which it retains until it emerges, making all the power expended available for propulsion. The cross-heads are compelled to move radially out and in by guides *e*, which embrace them. These guides are radially bolted to the flanges E, and to a small circle, *f*, bolted to the sides of the wheel-arms.

To insure strength and lightness, the entire wheel should be made of metal.

To keep the cross-heads and their attachments drawn in, an endless chain, N, passes alternately under sheaves *g*, journaled in forked studs tapped into the shaft midway between the flanges, and over similar sheaves *f'*, tapped by their studs into the base of each cross-head.

What is claimed as the invention, and desired to be secured by Letters Patent, is—

1. In combination, the floats H, levers K, provided with straps L and pins *c*, the cross-head M, and the guides *e*, bolted to flanges E E and circles *f*, the several parts being constructed substantially as described and shown.

2. The shaft A, cross-heads M, chain N, and sheaves *g f'*, substantially as and for the purpose set forth.

LOUISA VOLK, *Admr'x.*

Witnesses:

EDWARD SEYFARTH,

HERMAN SEYFARTH.